

Figure 1: BLSR network in normal mode

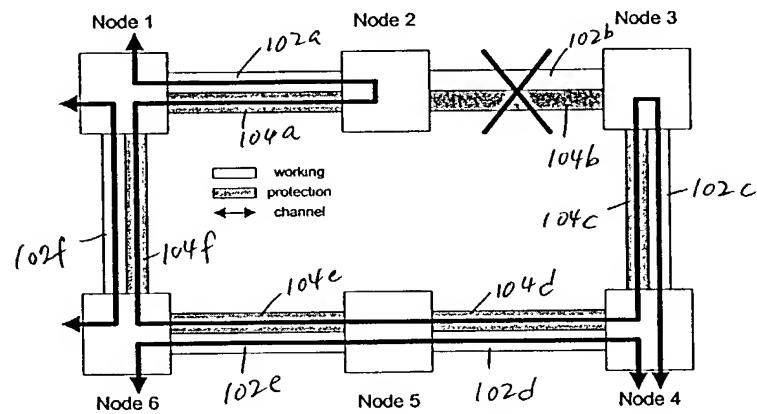


Figure 2: BLSR network in failed mode

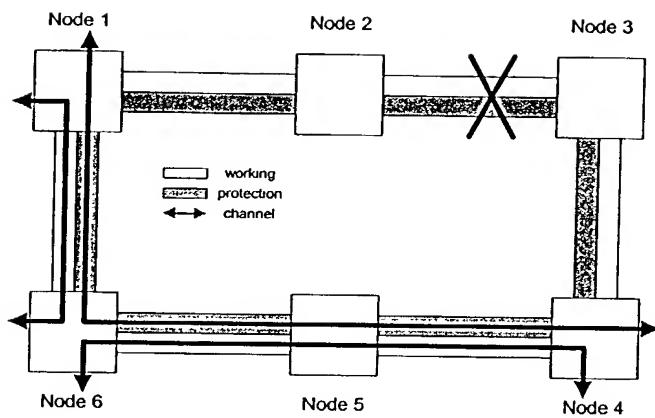


Figure 3: BPSR in failure mode

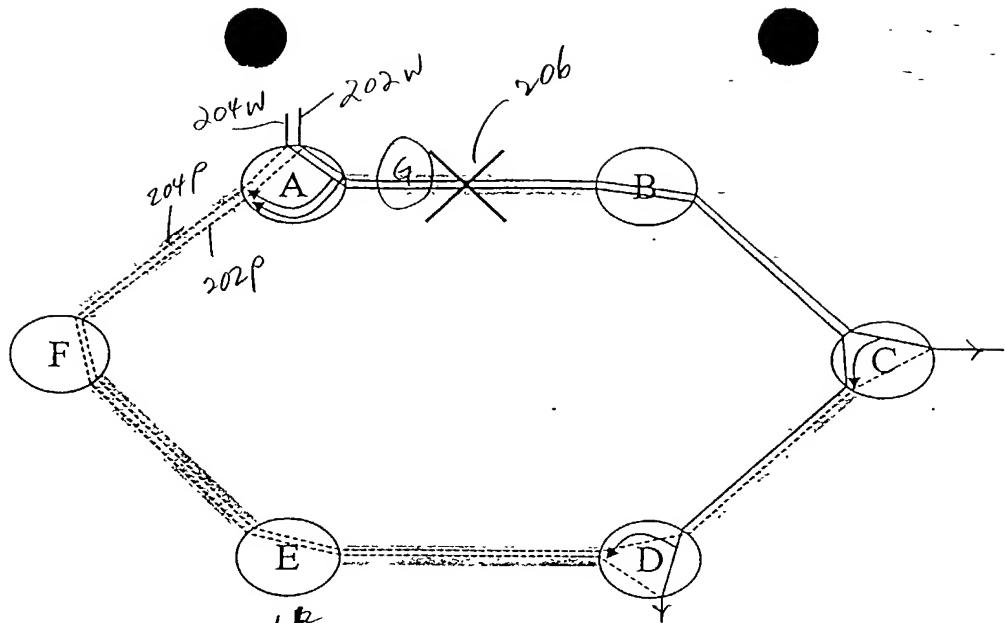


Figure 4: Switching failed paths in the case of link failure

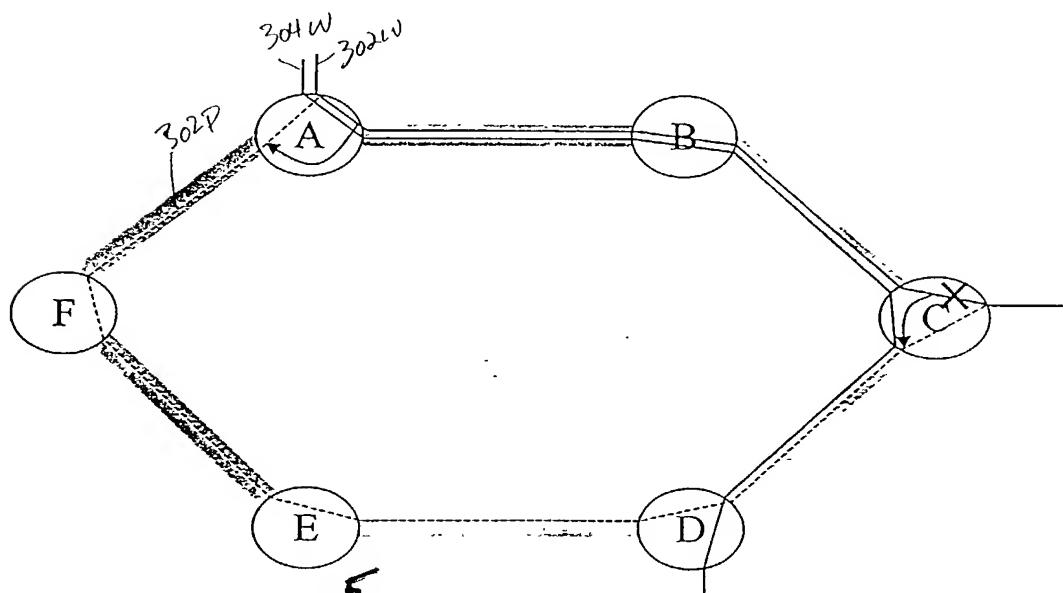


Figure 5: Switching only the failed path in the case of equipment failure

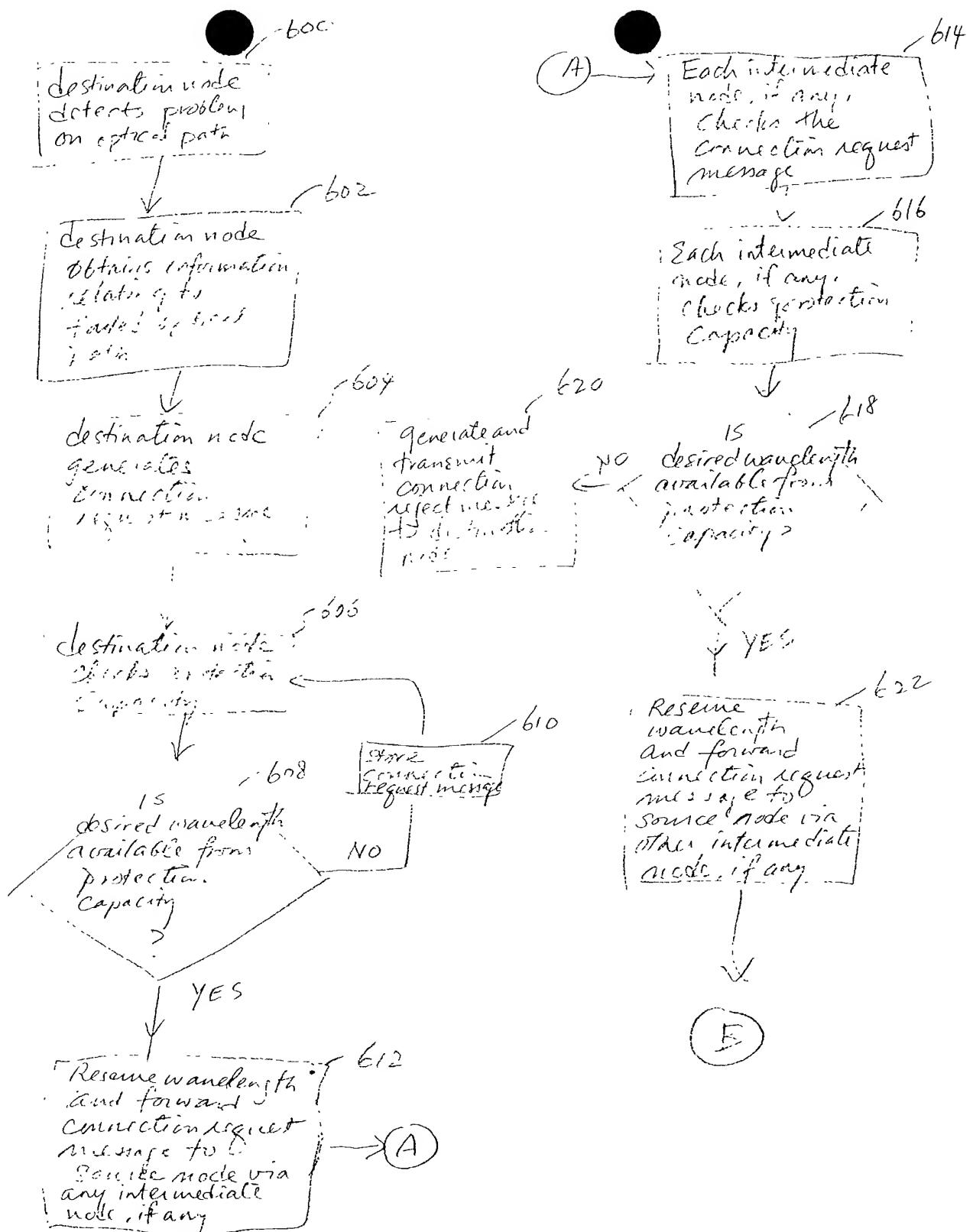


Fig. 6a

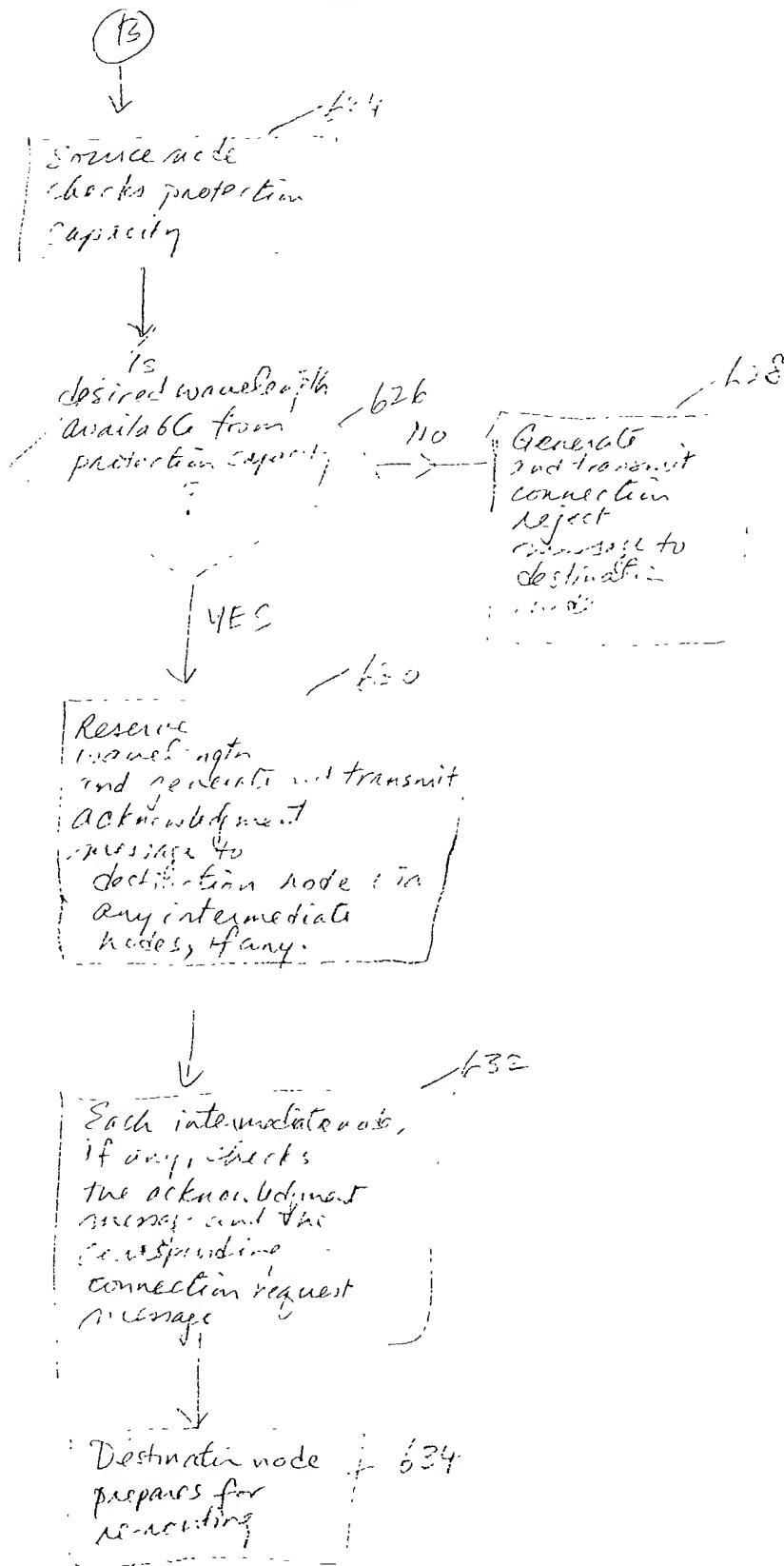


Fig. 6b

Con request	Source node id	Dest node id	Wavelength	Failure type	Priority
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Fig. 7

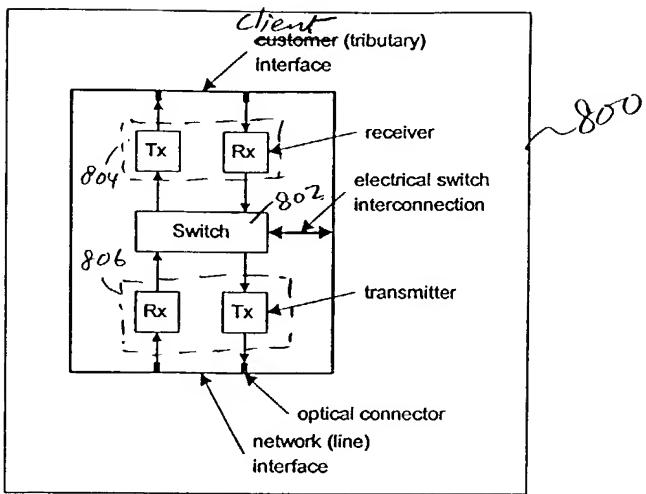


Figure 8

[23] These will be shown in greater detail later.

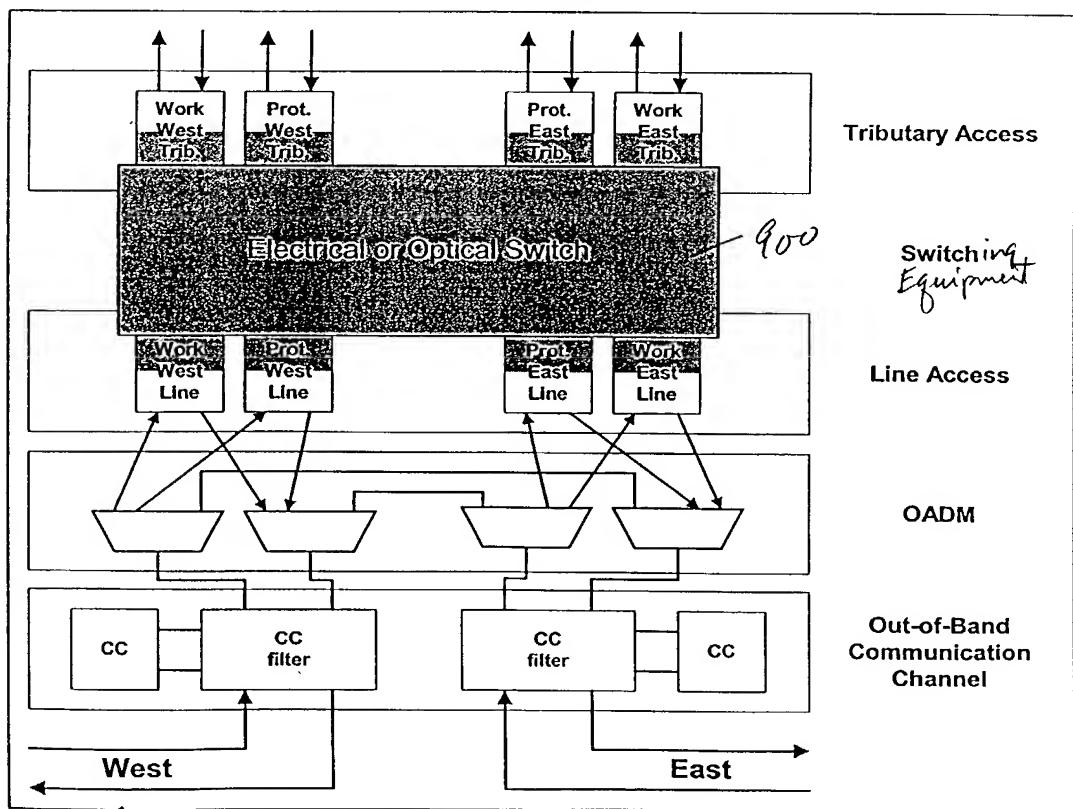


Figure 9

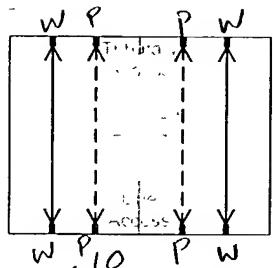


Figure 6: Switch in Normal Mode

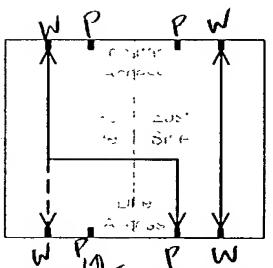


Figure 7: Switch in Ring-Switch East Mode

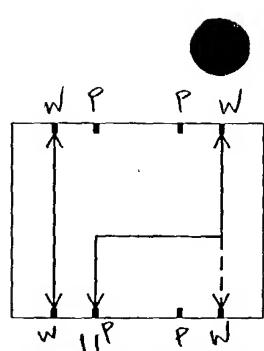


Figure 8: Switch in Ring-Switch West Mode

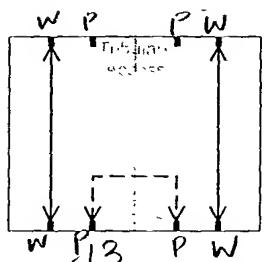


Figure 9: Switch in Bridge Mode

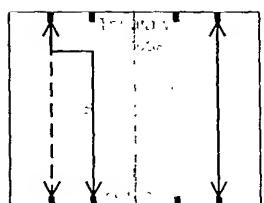


Figure 10: Switch in Span Mode

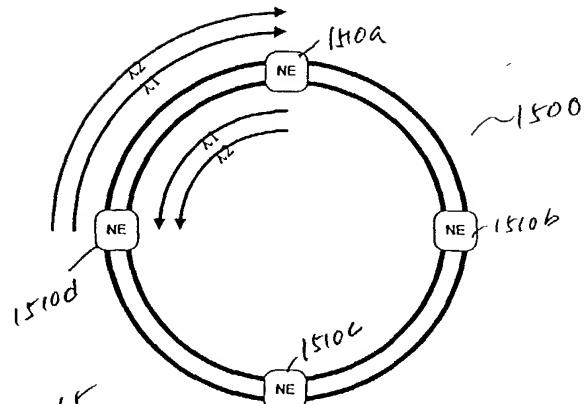


Figure 1: Wavelength assignment for CW and CCW direction

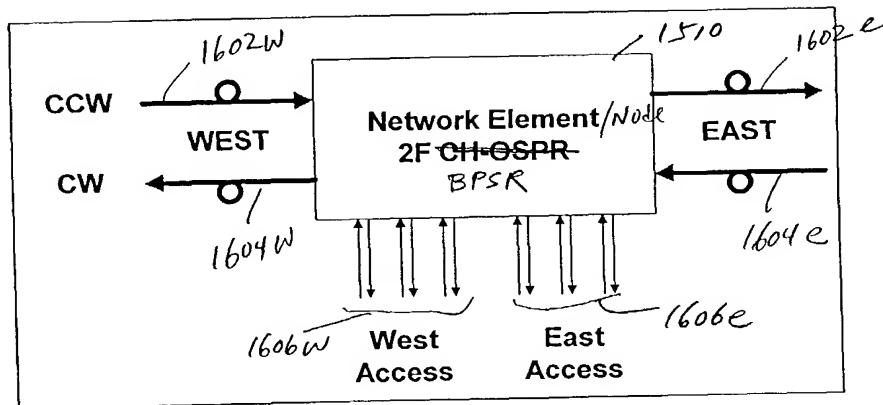


Figure 2: Network Element

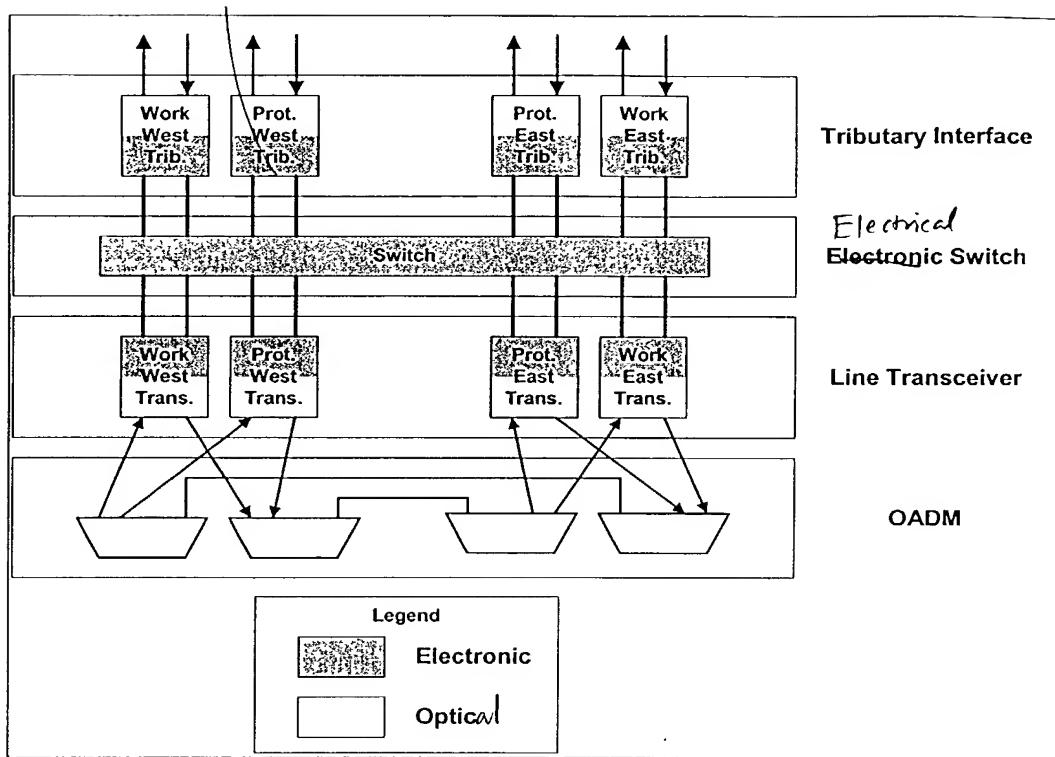
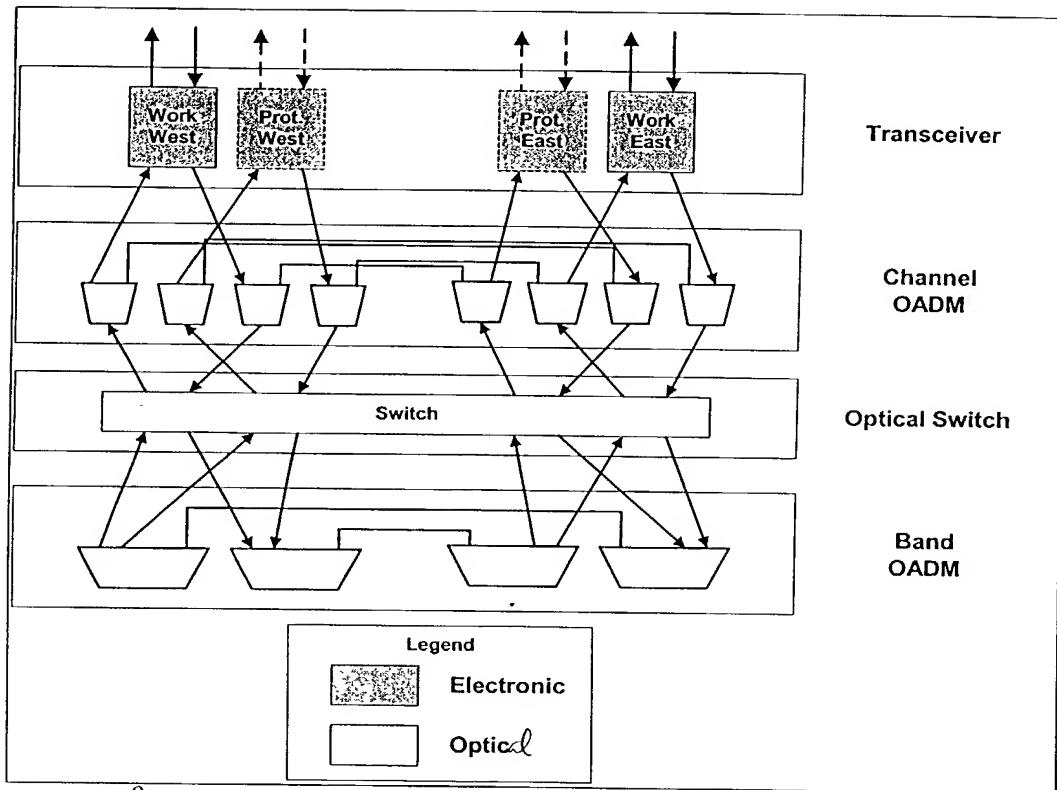


Figure 11: Network Element with Electrical Switch

17



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Figure 13: Network Element with an Optical Switch

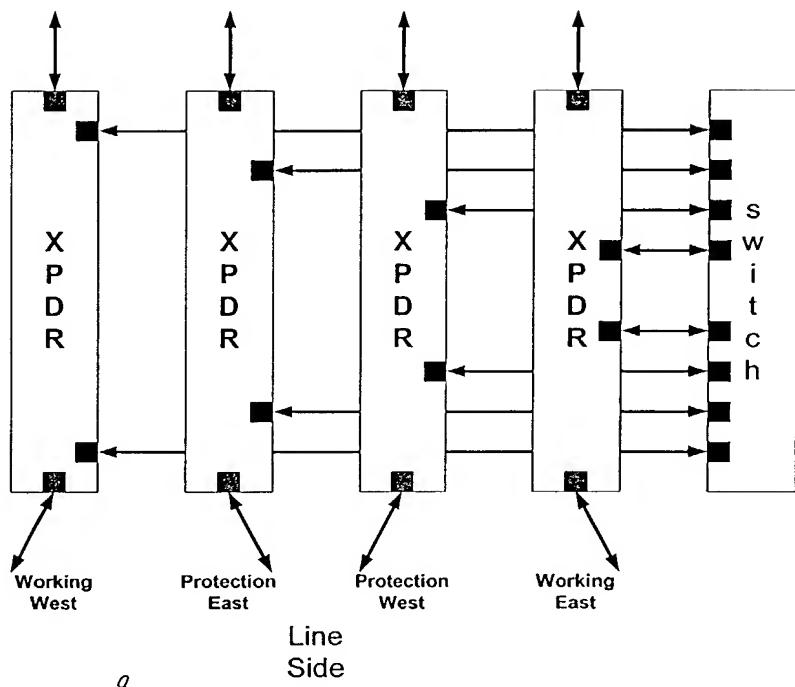


Figure 14: Centralized Switching

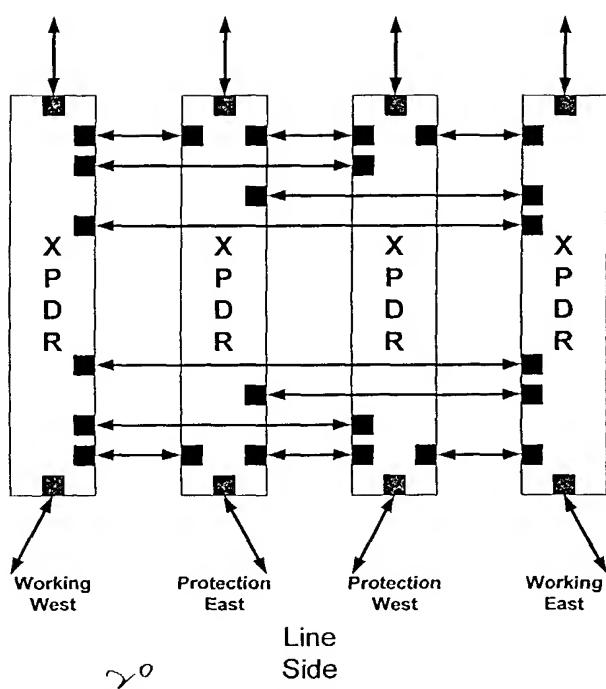
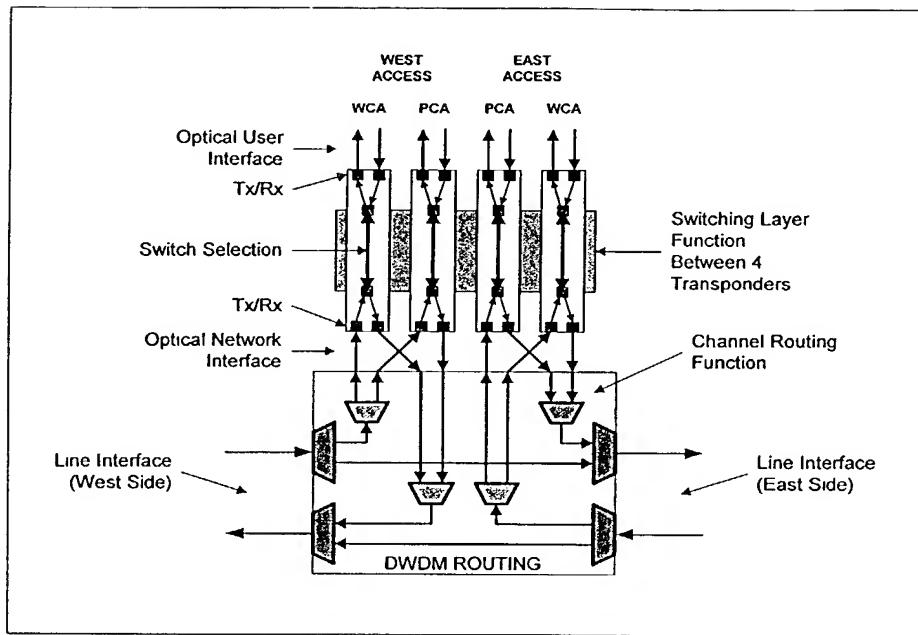
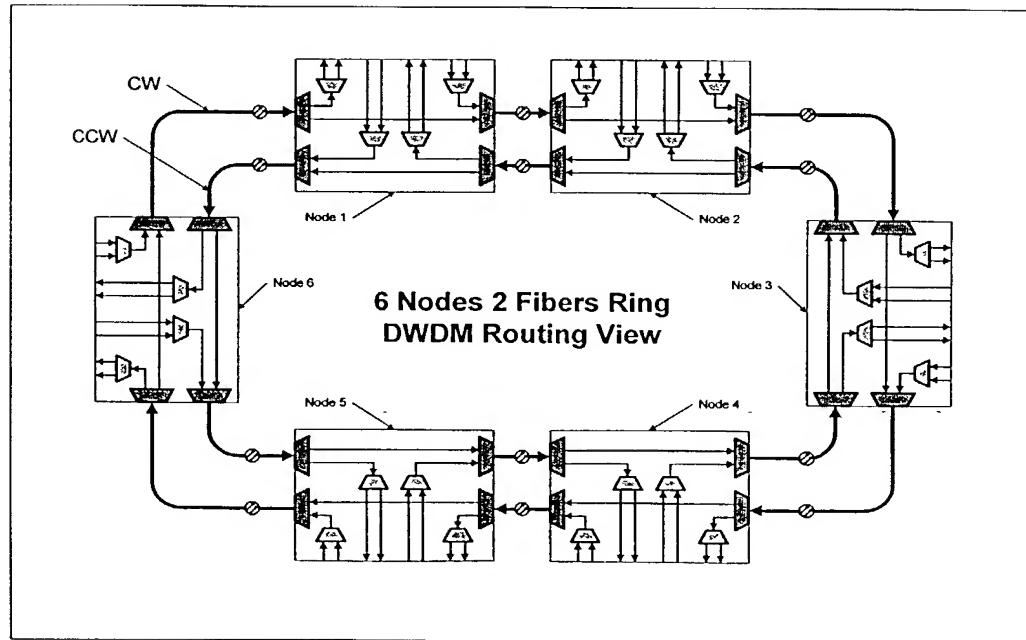


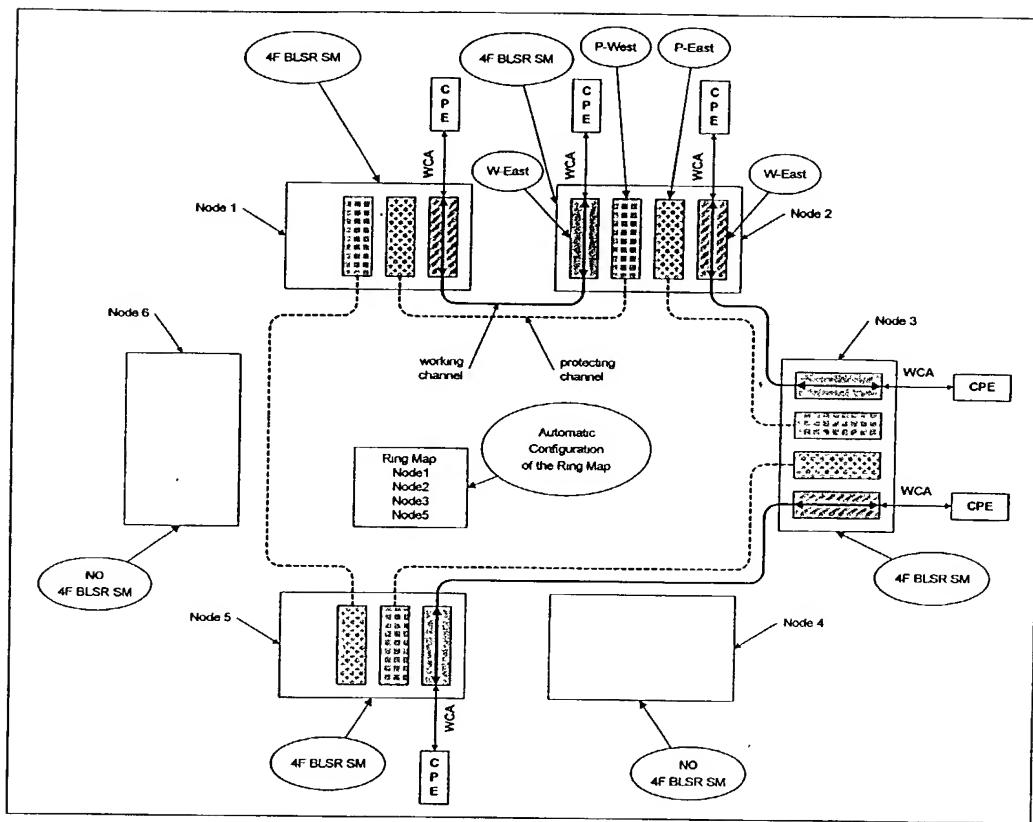
Figure 15: Distributed Switching



21
Figure 1: Network Element View



22
Figure 2: 6 nodes ring view



23
Figure 3: No Failure condition

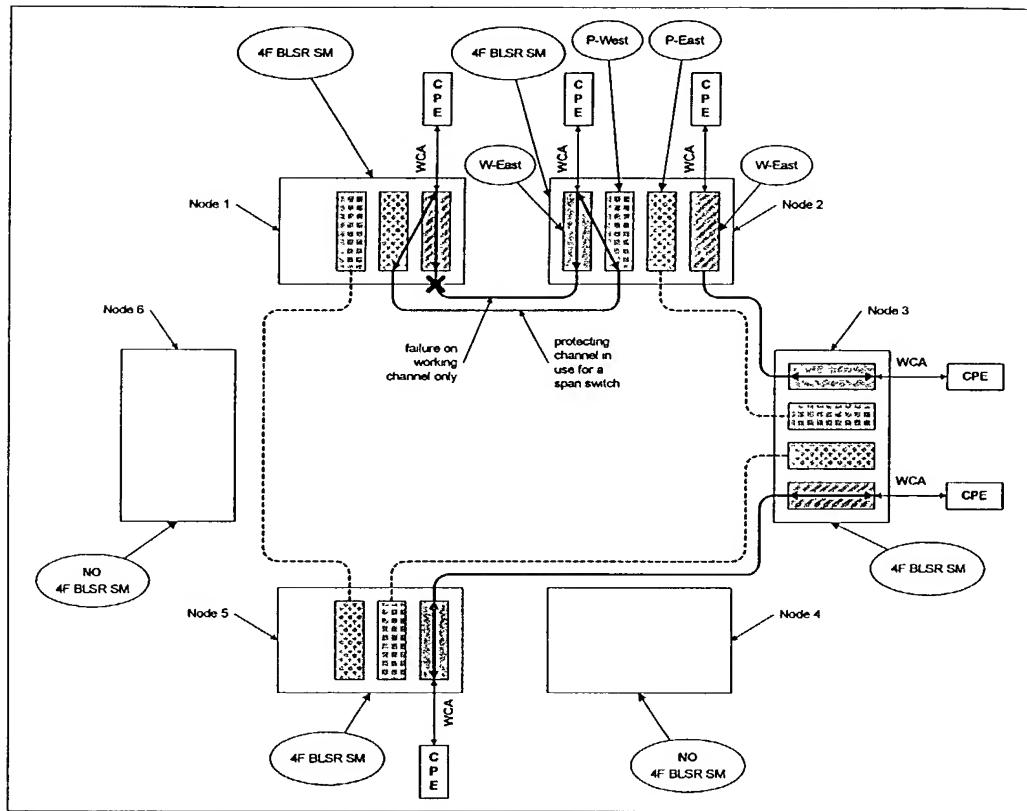
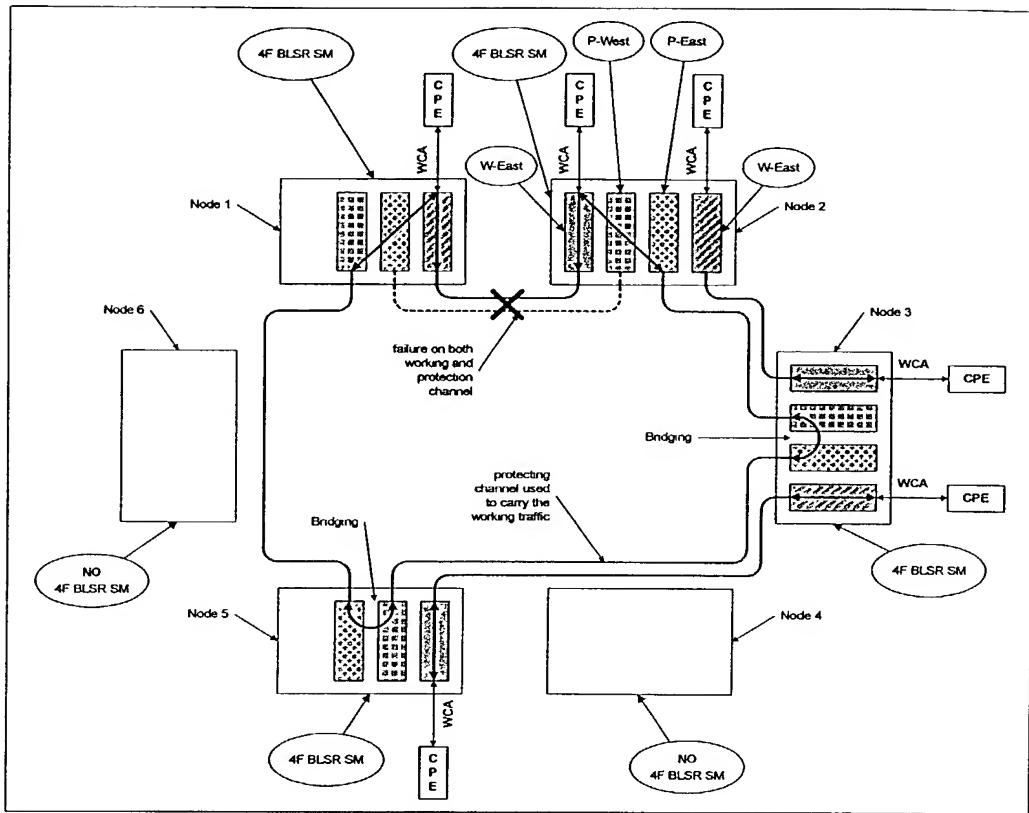
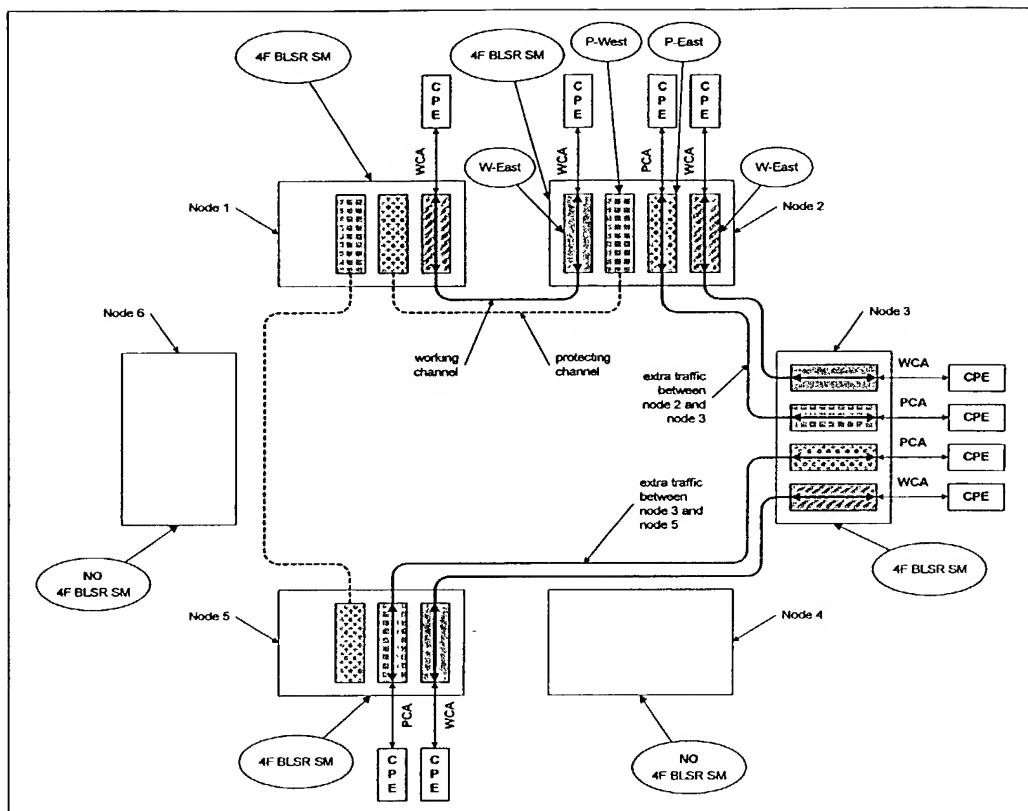


Figure 4: Span switch



75
Figure 5: Ring switch



26
Figure 6: PCA traffic

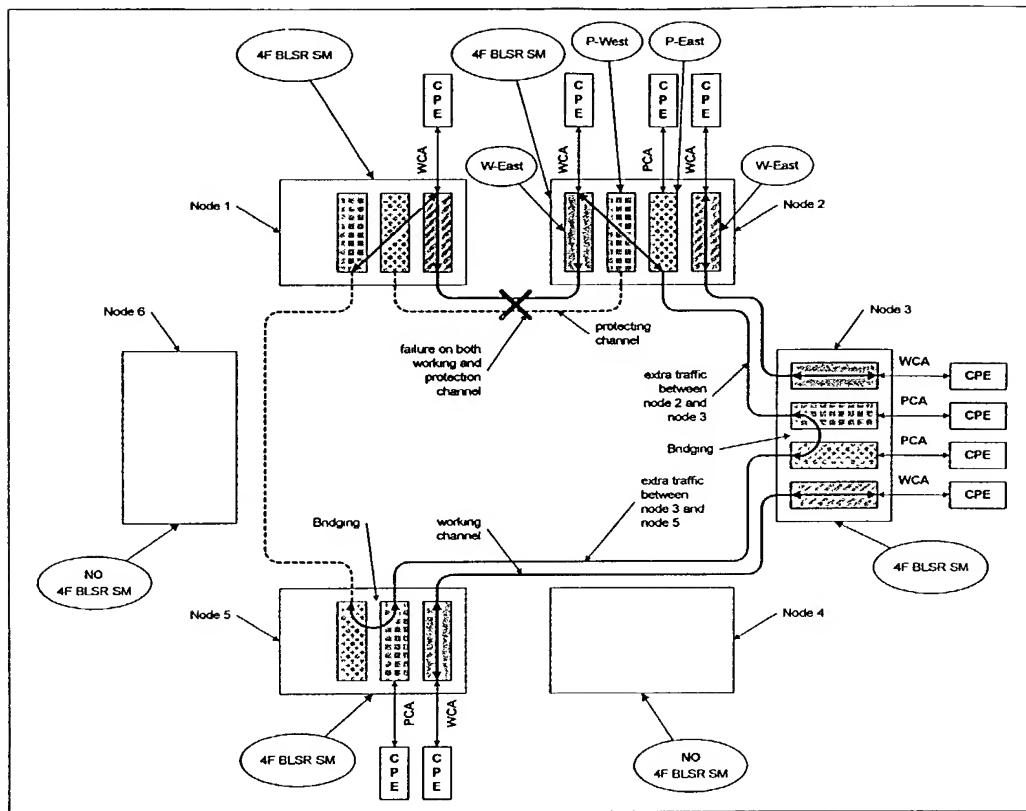


Figure 7: Ring switch with PCA traffic present

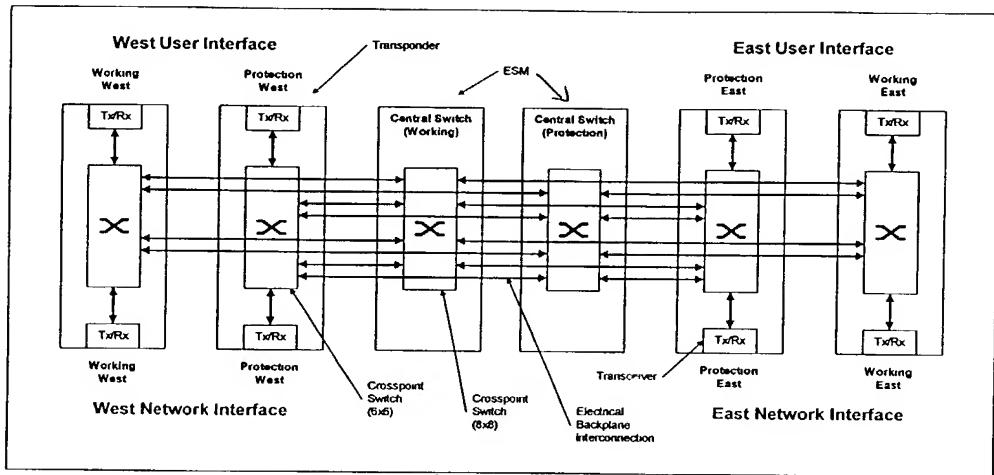
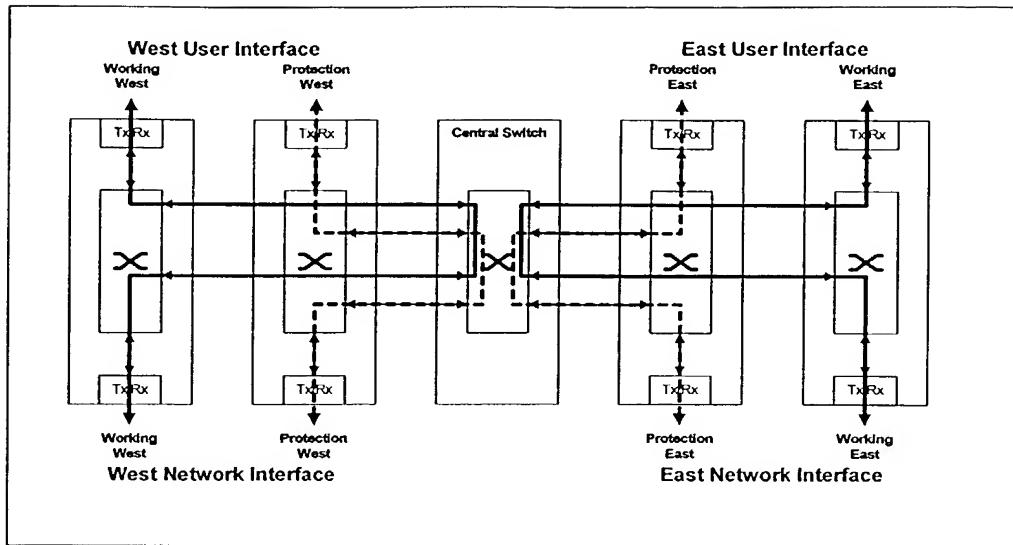
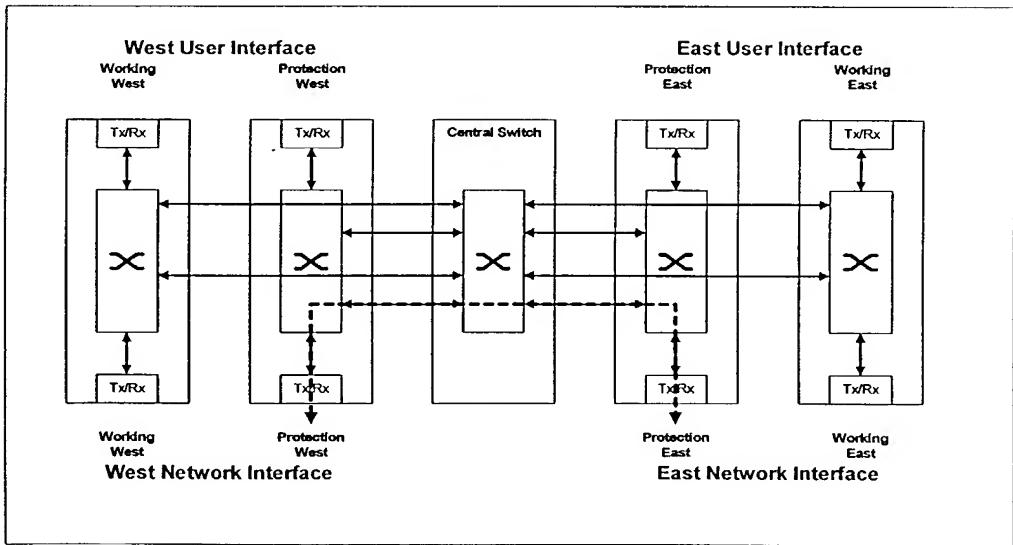


Figure 28: Centralized electrical switch



24
Figure 8: No failure condition



30
Figure 9: Bridge request on the protection

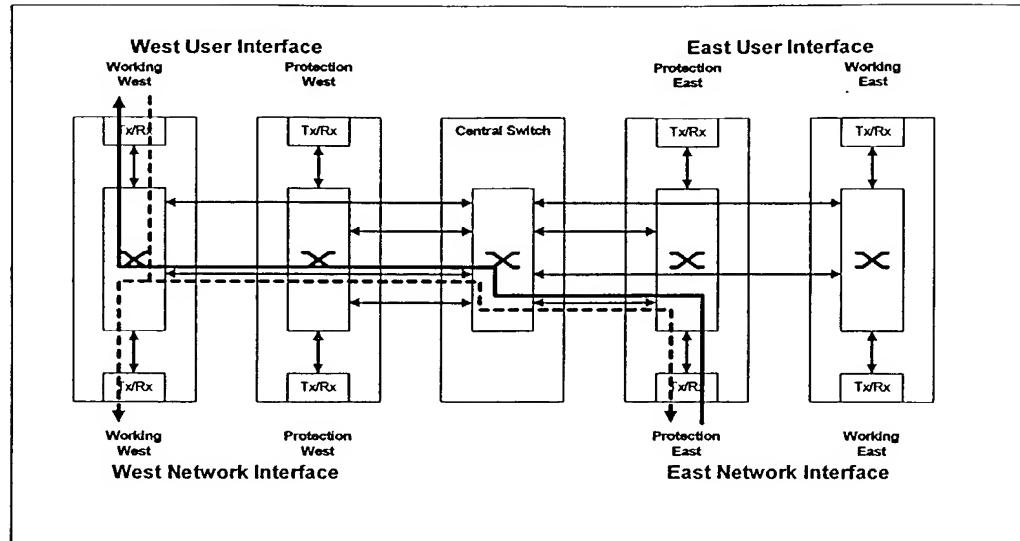


Figure 10: Switch to protection on opposite side

31

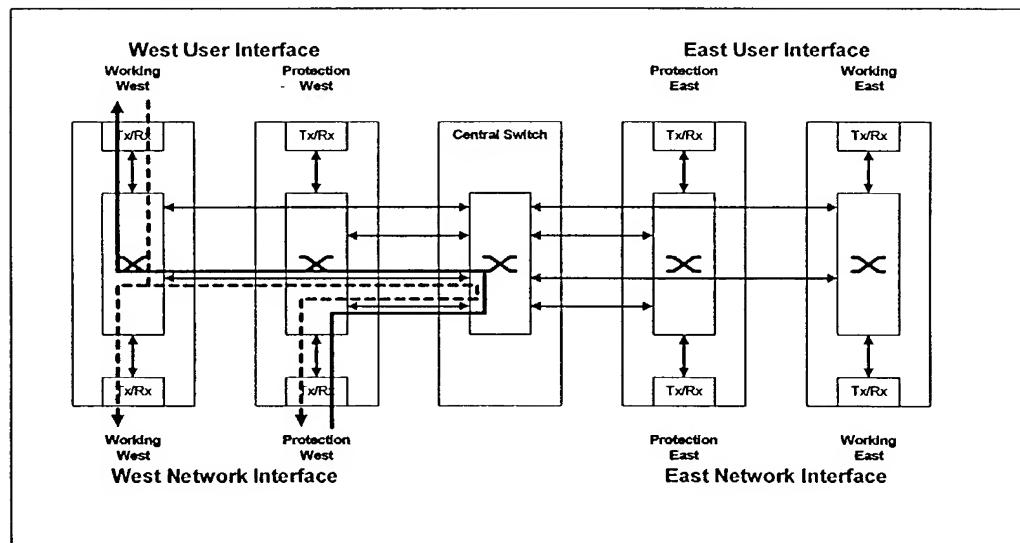


Figure 11: Span switch

32

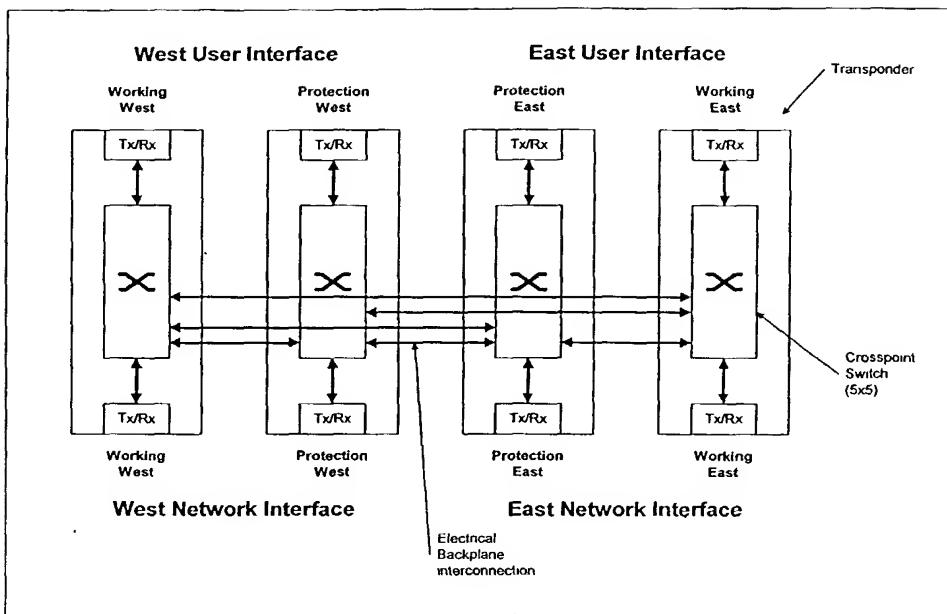
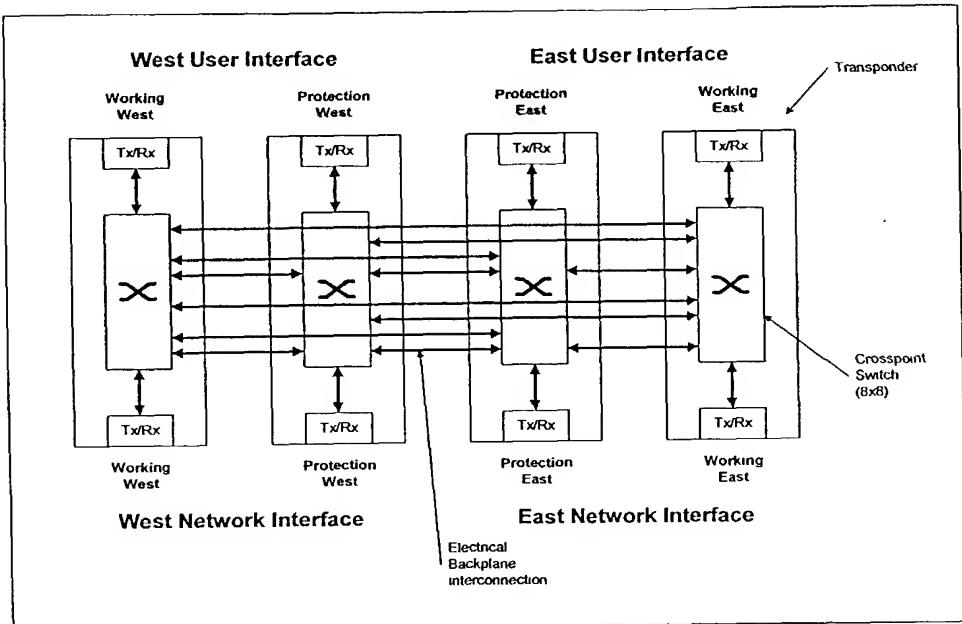


Figure 1: Distributed electrical switch

33



34
Figure 2: Distributed electrical switch with interconnection redundancy.

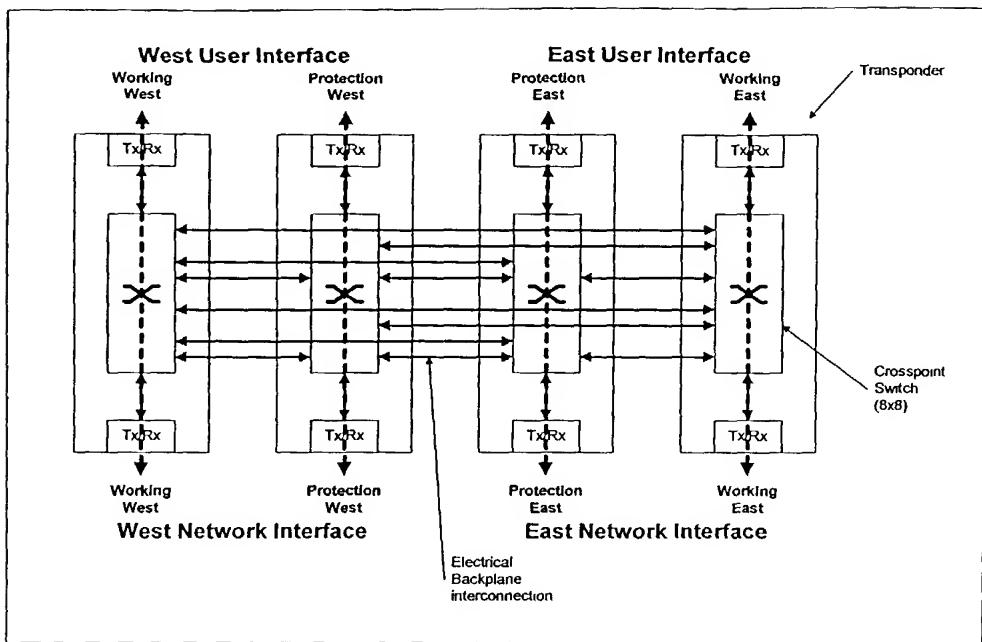


Figure 3: No failure condition

35

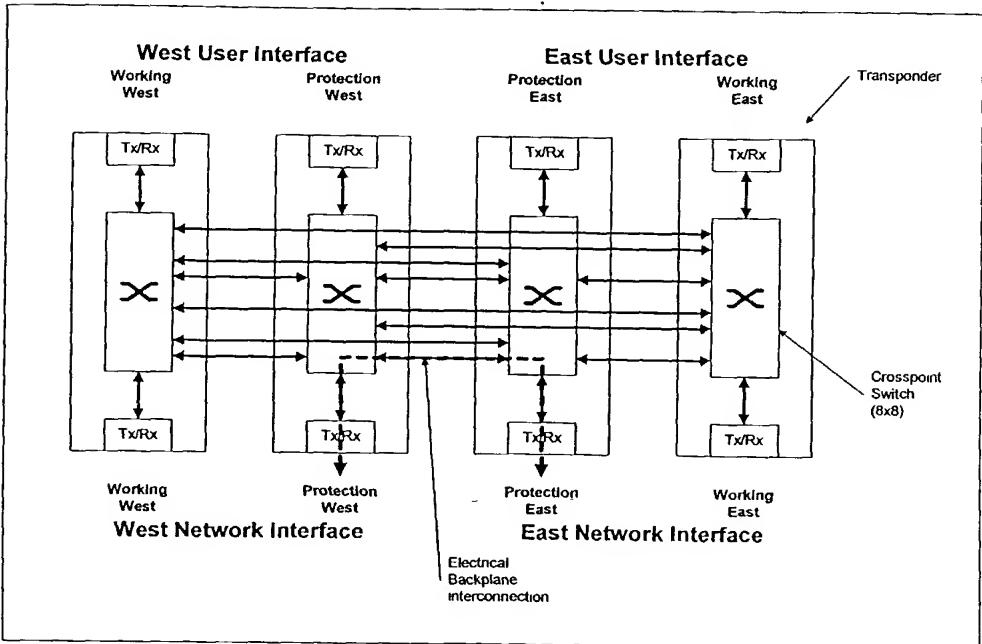


Figure 4: Bridge request on the protection channel

36

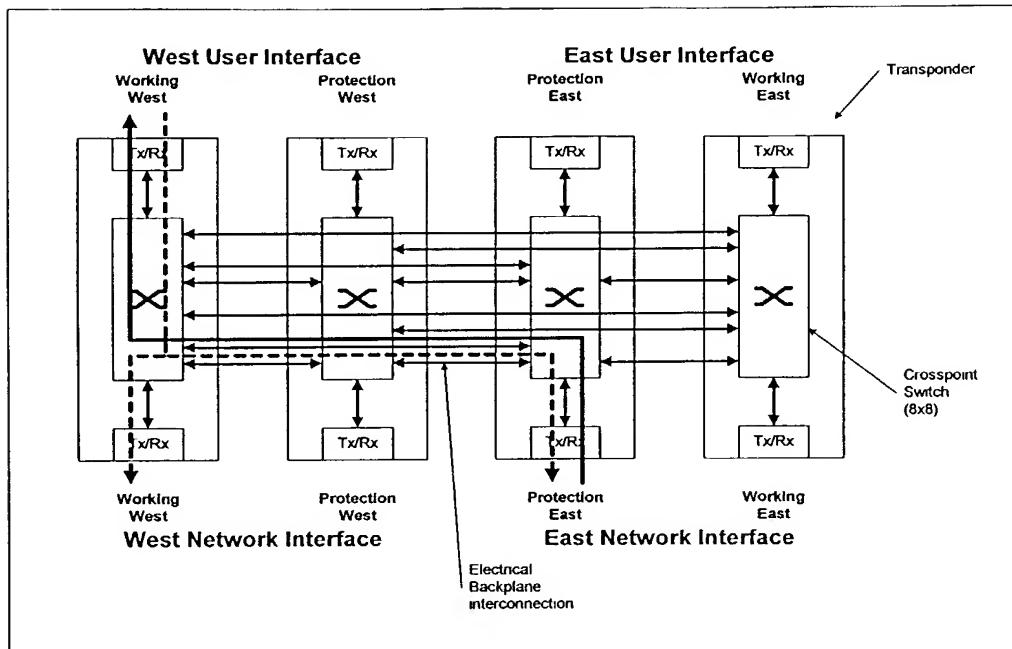


Figure 5: Switch to protection on opposite side

37

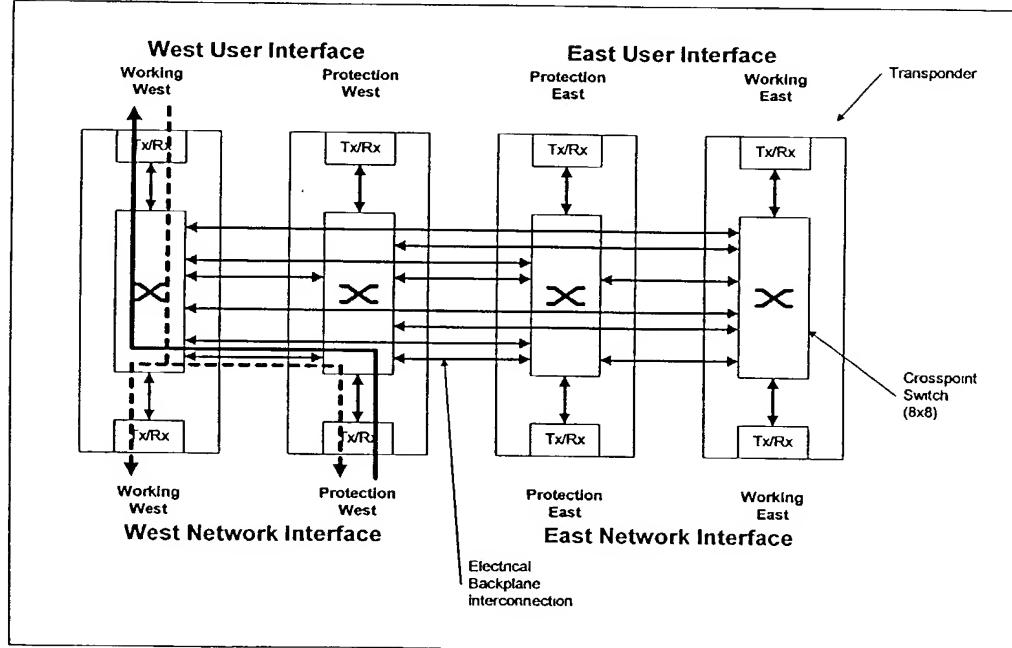


Figure 6: Span switch

38

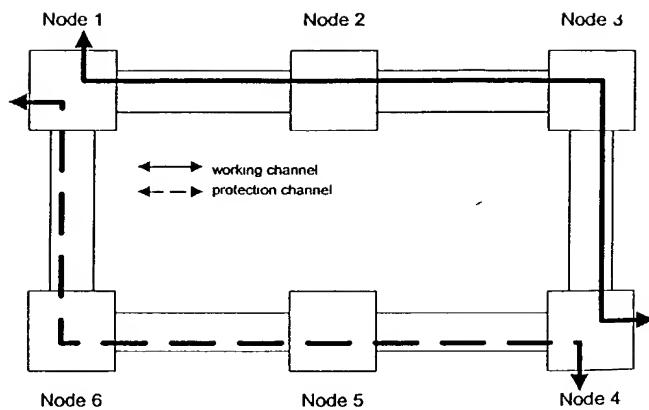


Fig. 39

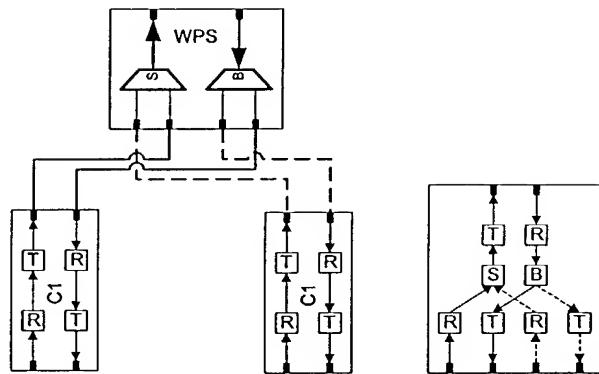


Fig. 40

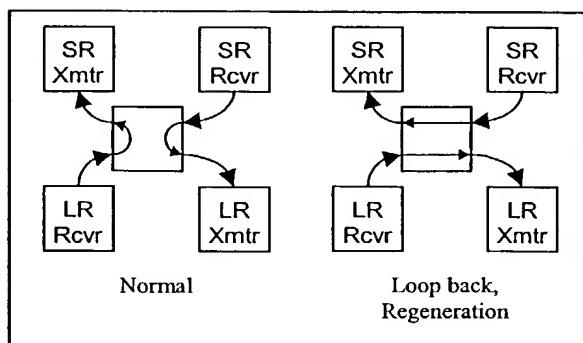


Fig. 41

Electrical Transceiver switch

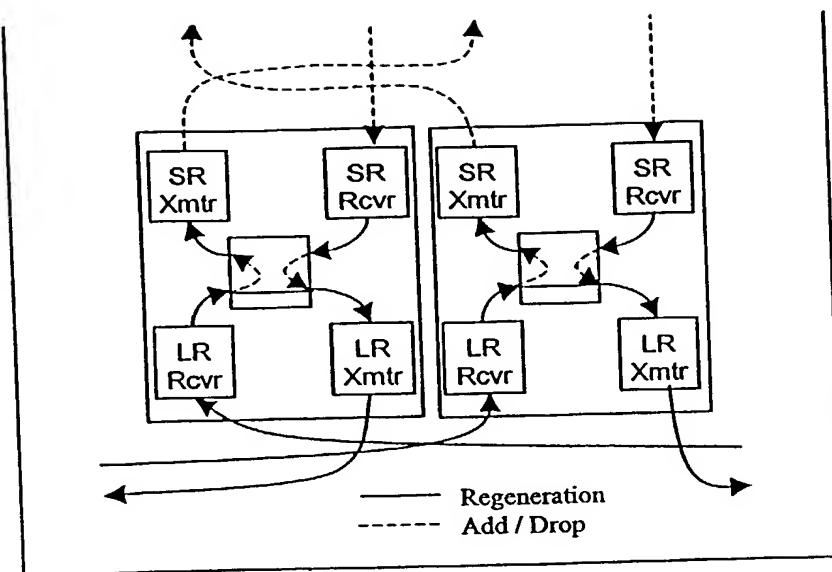


Figure 19: Crossover Add/Drop Regeneration

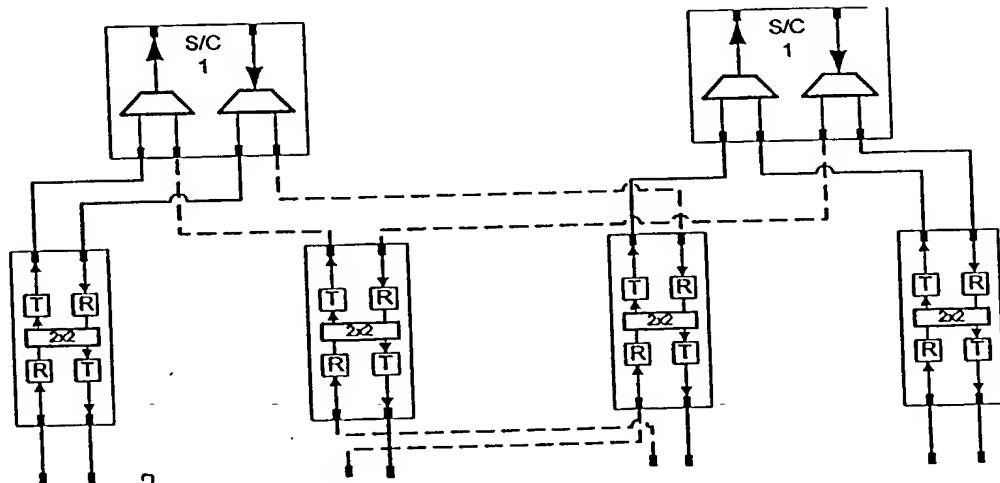


Figure 20: O-BPSR switch in Normal mode using O-UPSR and Crossover Add/Drop Regeneration

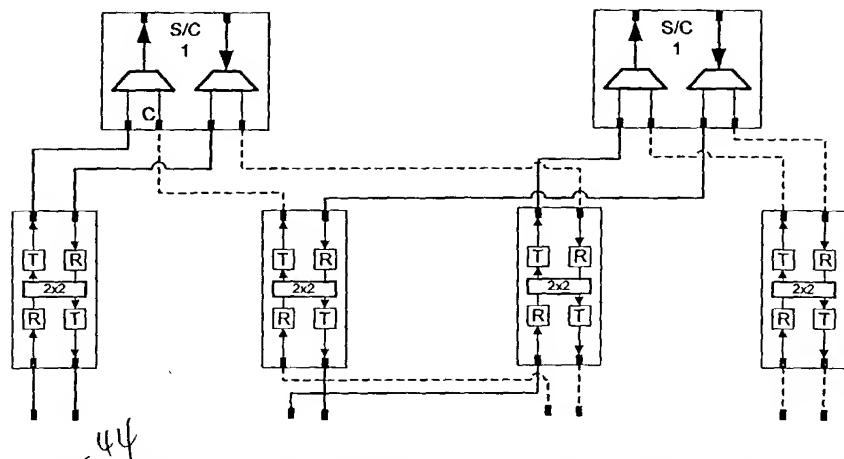
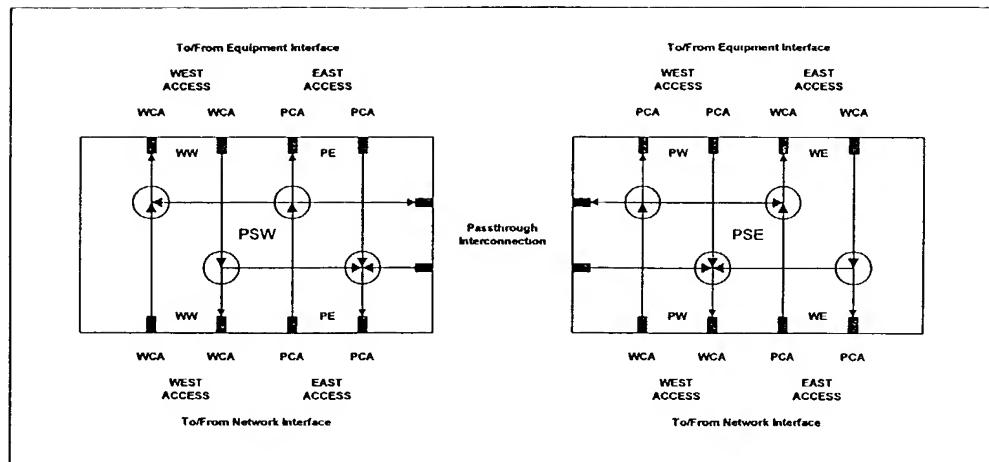
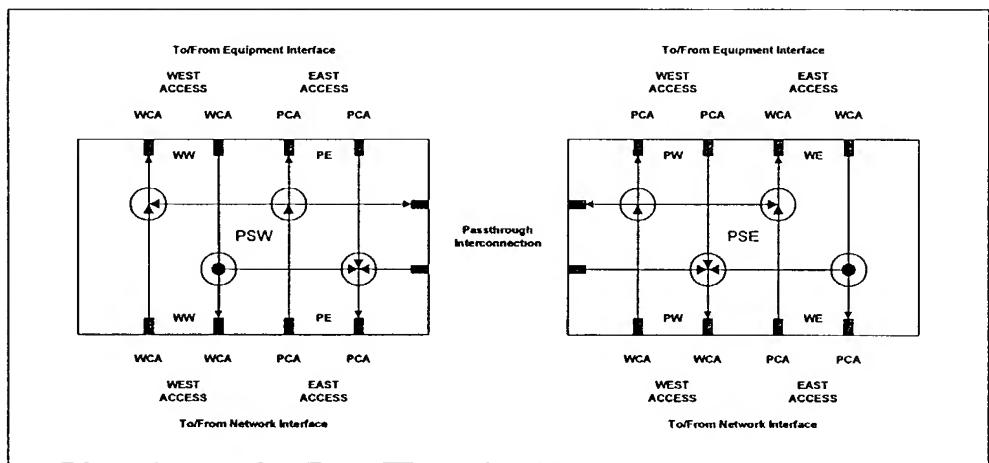


Figure 24: O-BPSR switch in Ring-Switch West mode using O-UPSR and Crossover Add/Drop Regeneration



45
Figure 7: Protection Switch Module



47
Figure 8: Protection Switch Module with bridging support

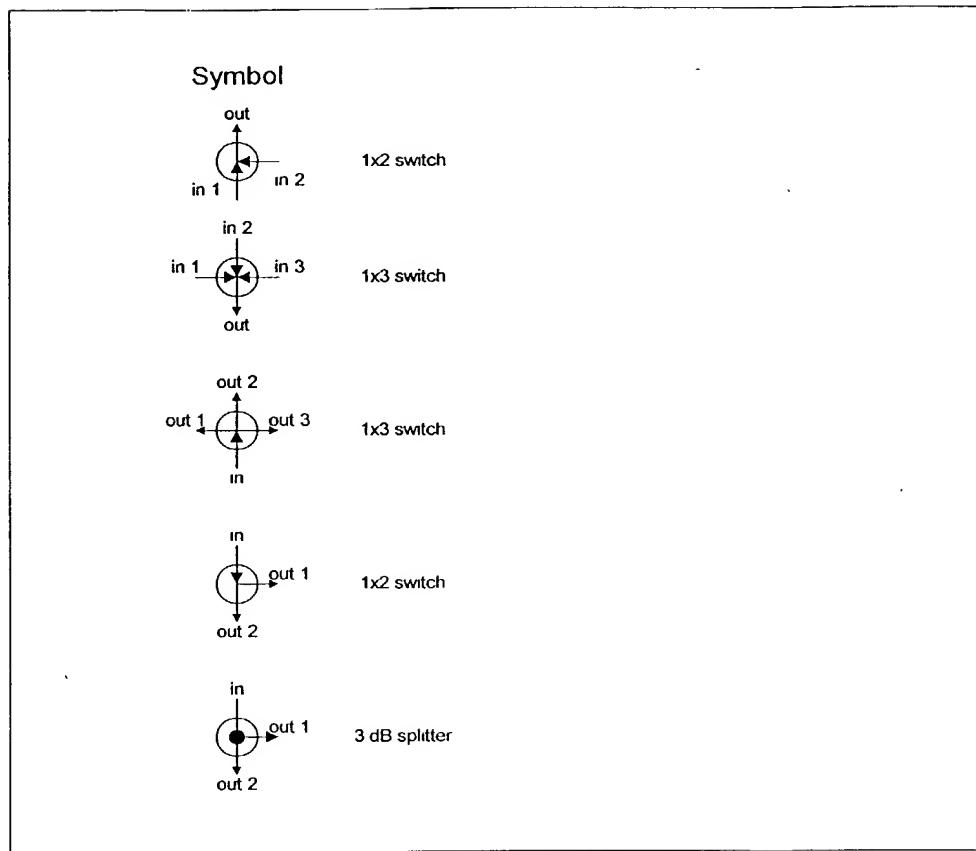
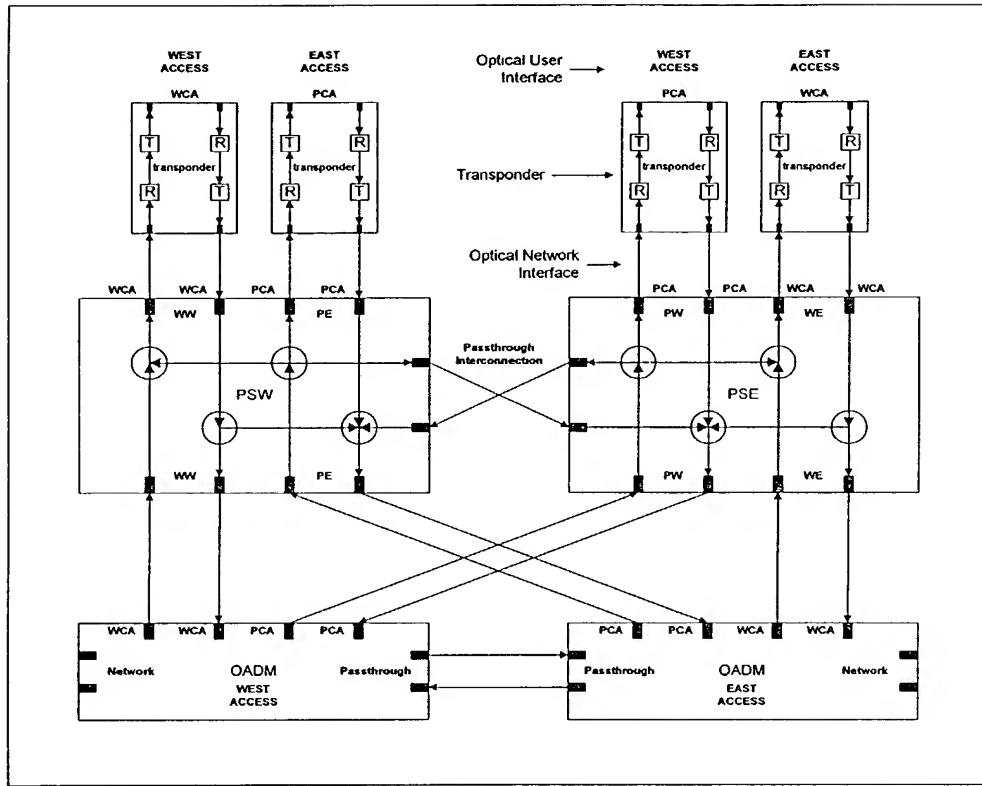


Figure 6: Switch Legend

46



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Figure 9: Interconnected System

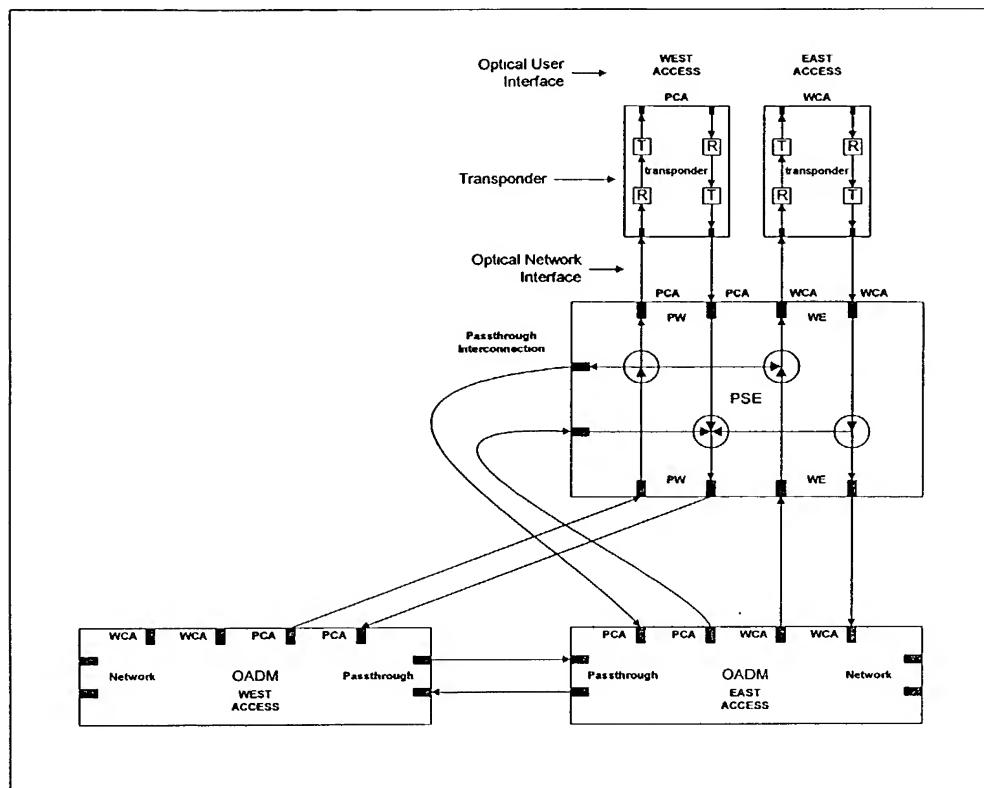


Figure 10: Interconnection system with working east access

49

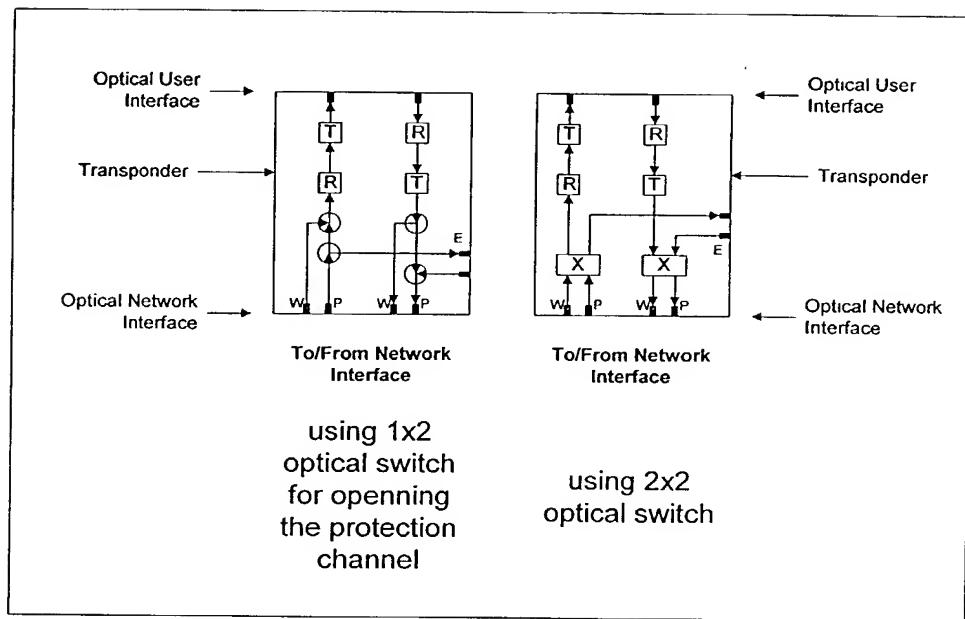


Figure 1: Distribution of the switching function on the transponder

50

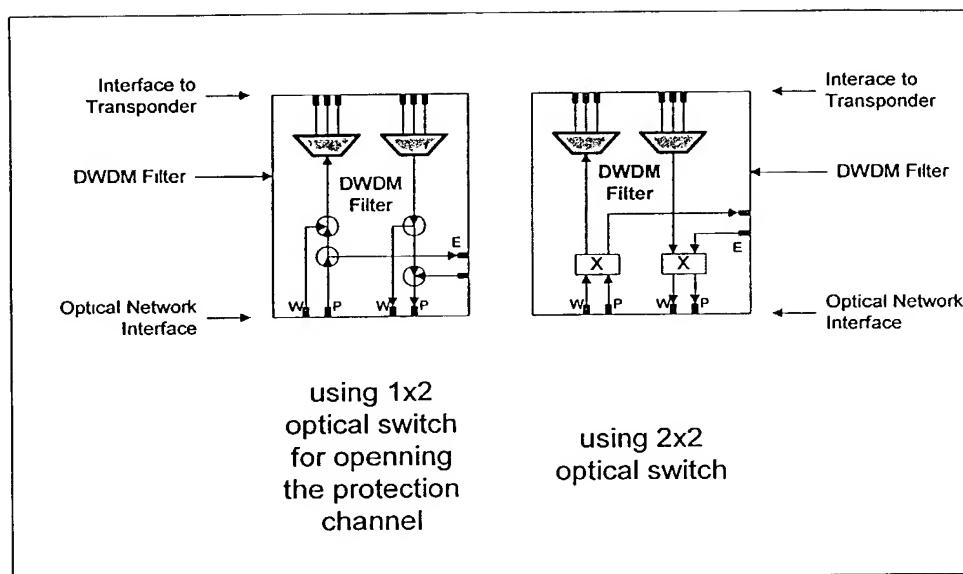
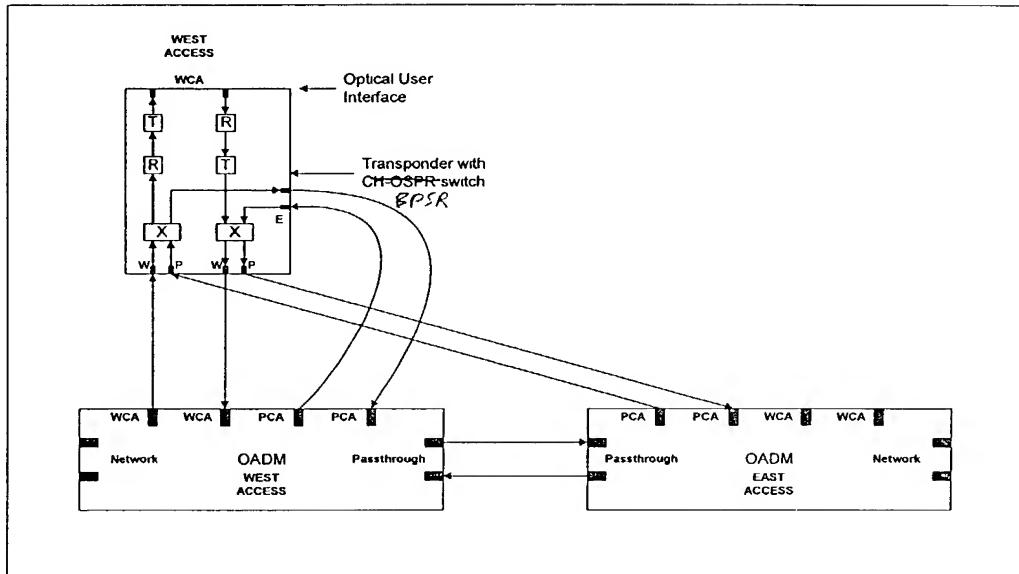
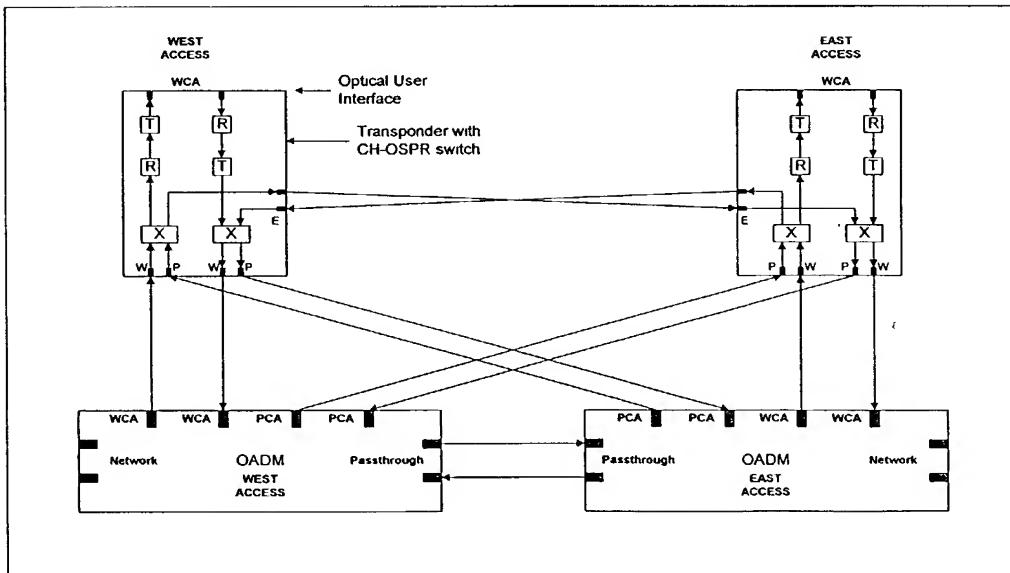


Figure 2: Distribution of the switching function on the DWDM filter



52
Figure 52: System interconnection for WCA on West side only



53
Figure 53: System Interconnection with WCA on East and West

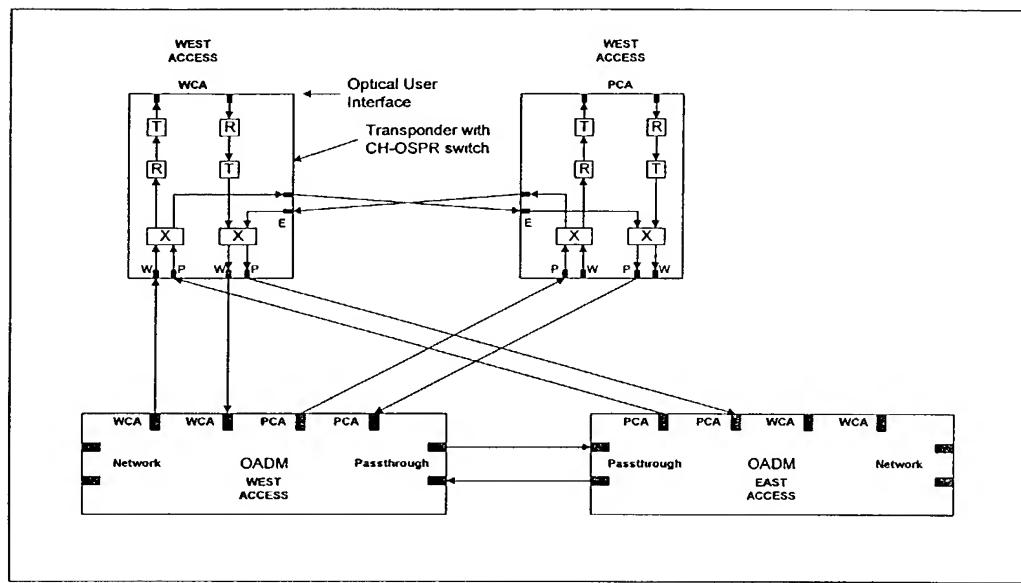


Figure 5: System interconnection with WCA and PCA

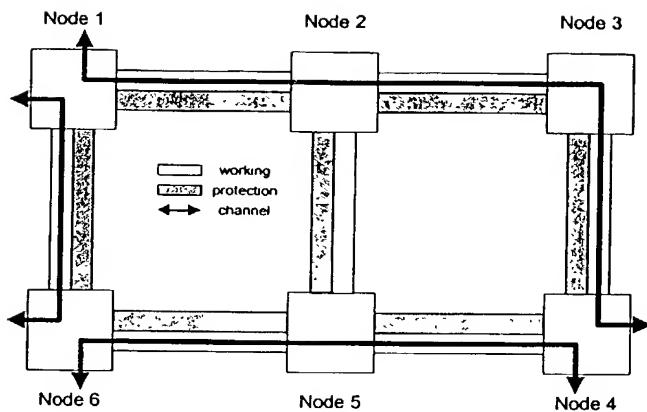


Figure X: Two Interconnected Rings sharing protection bandwidth between N2 & N5.

55

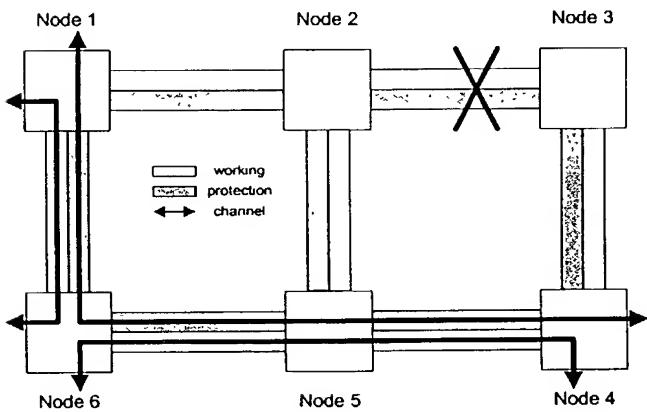
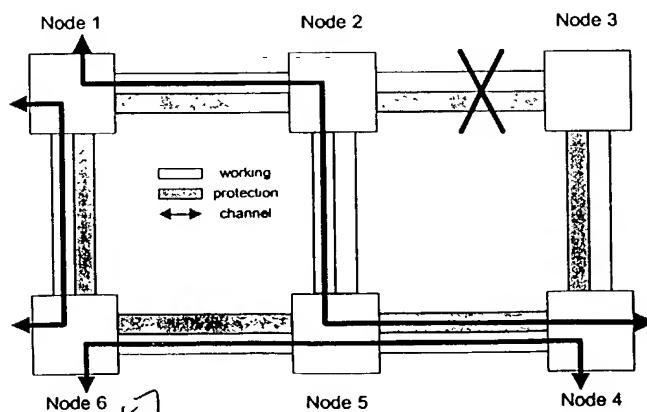


Figure X: Failure between N2 and N3 with rerouting along virtual ring N1-N2-N3-N4-N5-N6

56



57 Figure Z: Failure between N2 and N3 with rerouting along virtual ring N2-N3-N4-N5